

ABSTRACT OF THE DISCLOSURE

Solid phase materials for binding nucleic acids and methods of their use are disclosed. The materials feature a cleavable linker portion which can be cleaved to release bound nucleic acids. The solid phase materials comprise a solid support portion comprising a matrix selected from silica, glass, insoluble synthetic polymers, and insoluble polysaccharides to which is attached a nucleic acid binding portion for attracting and binding nucleic acids, the nucleic acid binding portion (NAB) being linked by a cleavable linker portion to the solid support portion. Preferred nucleic acid binding portions comprise a ternary or quaternary onium group. The materials can be in the form of microparticles, fibers, beads, membranes, test tubes or microwells and can further comprise a magnetic core portion. Methods of binding nucleic acids using the cleavable solid supports are disclosed as are their use in methods of isolating or purifying nucleic acids.